

Work Order ID 53255

Page 1

October 29, 2009 8:20:28 AM

Item ID: D212-664-207TRN

Accept



Setup Start



Revision ID: A

Stop



Item Name: Crosstube Turning Detail

Start Date: 29/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *PL*

Date: 09/10/29 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D212-664-247	Rev A

100



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Mori Seiki CNC Lathe Large

Memo

0.00

SA 09/11/08

110



QC1- Inspect dimensions to dimension sheet

QC

Quality Control

0.00

0.00

SA 09/11/08

120



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Mori Seiki CNC Lathe Large

Memo

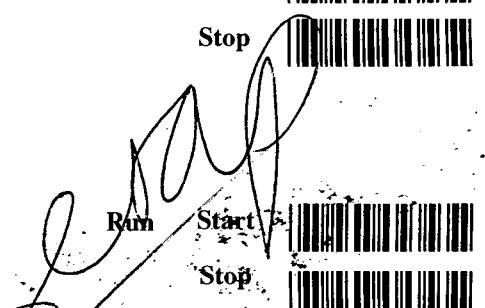
0.00

0.00

SA 09/11/08

1-Turn second side as per Folio FA706□2- File transition lines smooth.□3-

Remove sand and plugs



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D 212-664-207 TRA PAR #: _____ Fault Category: Cross tubes NCR: Yes No DQA: Date: 10/03/01
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: _____ Date: _____

NCR: 53255		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/11/18	#120	After Machining it was found that the measurement of the tube are too small. (see dia sheet) on the side only.	10/02/18	→ diameters are too small Taper under by over 0.020 Too much for both strength and fatigue. SCRAP CP10.52.103	10-2-18	10/02/18	10/02/18	10/02/18
		Re: Machine malfunction. Trouble with +x axis not zeroing correctly.	QST 042			QST 042		QST 042

NOTE: Date & initial all entries

Work Order ID 53255

Page 2

October 29, 2009 8:20:28 AM

Item ID: D212-664-207TRN

Accept



Setup

Start



Revision ID: A

Stop



Item Name: Crosstube Turning Detail

Start Date: 29/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp130 QC1- Inspect dimensions to dimension sheet 0.00 *JK 07/10/08*

QC

Quality Control

140 QC8- Inspect parts - second check 0.00



QC

Quality Control

150 Crosstubes Chemical Conversion 0.00



HandFXtube

Hand Finishing Crosstubes

Work Order ID 53255

Page 3

October 29, 2009 8:20:28 AM

Item ID: D212-664-207TRN

Accept



Setup

Start



Revision ID: A

Stop



Item Name: Crosstube Turning Detail

Start Date: 29/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

160



QC3- Inspect Part Finish

0.00

QC

Memo

0.00

Quality Control

170



Packaging

0.00

Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location: _____

180



QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

MF
10-2-18

Picklist Print

Page 1

October 29, 2009 8:20:33 AM

Work Order ID: 53255



Parent Item: D212-664-207TRNRevA



Parent Item Name: Crosstube Turning Detail

Start Date: 29/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6008-132RevA		Manufactured		No		110	Each	13.0000	1.0000			

Crosstube extrusion

	<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	<u>Location</u>		
	Main Warehouse		
	LG	13	
	50892	13	<i>PLW 9-11-05</i>

DART AEROSPACE LTD	Work Order:	53255
Description: Crosstube Assembly (205/212 Low Aft)	Part Number:	D212-664-247
Inspection Dwg: D212-664-247 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.438	+/-0.010	7.38	/		
	2.680	+0.005/-0.000	2.685	/		
	2.680	+0.005/-0.000	2.685	/		
	2.687	+0.005/-0.000	2.692	/		
	2.802	+0.005/-0.000	2.807	/		
	2.906	+0.005/-0.000	2.909	/		
	3.009	+0.005/-0.000	3.014	/		
	3.112	+0.005/-0.000	3.117	/		
	3.250	+0.005/-0.000	3.250	/		
SIDE B	0.438	+/-0.010	7.38	/		
	2.680	+0.005/-0.000	2.657	/		
	2.680	+0.005/-0.000	2.657	/		
	2.687	+0.005/-0.000	2.665	/		
	2.802	+0.005/-0.000	2.780	/		
	2.906	+0.005/-0.000	2.881	/		
	3.009	+0.005/-0.000	2.984	/		
	3.112	+0.005/-0.000	3.111	/		
	3.250	+0.005/-0.000	3.250	/		
	128.27	+/-0.030	128.28	/		

Measured by:	
Date:	08/11/08

Audited by:	
Date:	

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.11.07	New Issue (P/O D212-664-207)	KJ/EC 	

6008-132

128.52

PARTS LIST:

Qty	Part Number	Description
X	D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
1	D6008-132	CROSSTUBE
2	D2940-1	SUPPORT
4	D3595-063-530	RUBBER CUSHION
2	D3660-1	CUFF
4	MS21920-28	CLAMP (OR MS21920-30)
44	CR3212-4-06	RIVET (OR M7885/3-4-06)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6008-132
FINISHED LENGTH = 128.27±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) PART IS SYMMETRIC ABOUT CENTERLINE.
- 6) WHEN MACHINING TAPER, RUN-OFF PART AT STOCK. BLEND OUT EDGE LONGITUDINALLY.
TRANSITION SHOULD BE SMOOTH.
- 7) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 8) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 9) SCRIBE DART PART NUMBER AND BATCH NUMBER ON INNER SURFACE OF TUBE WITH A
VIBRATING STYLUS.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1
THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER
INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE
D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE
CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY
AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 14) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A
LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN
CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

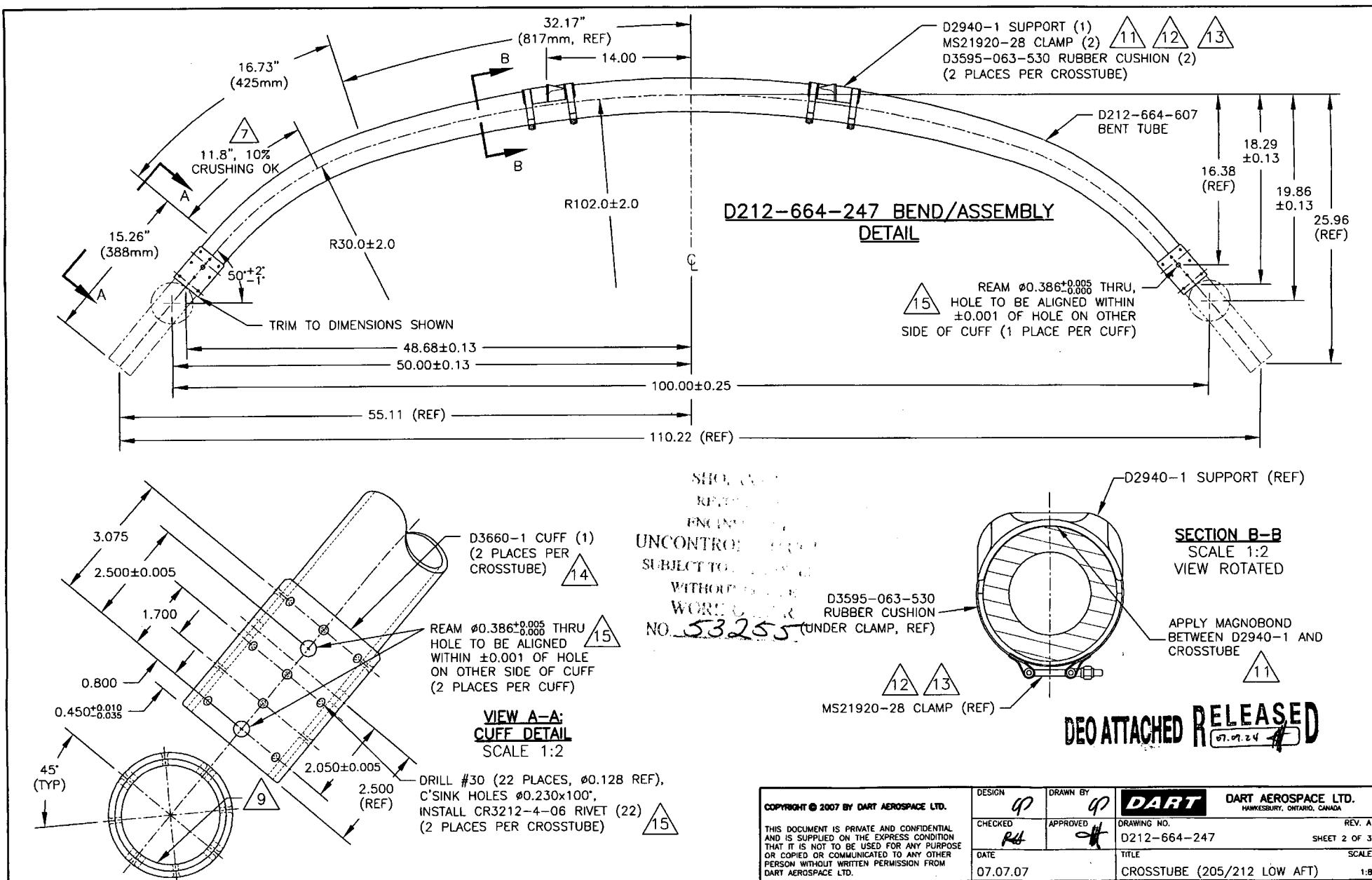
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO
WIRELESS
WIRELESS

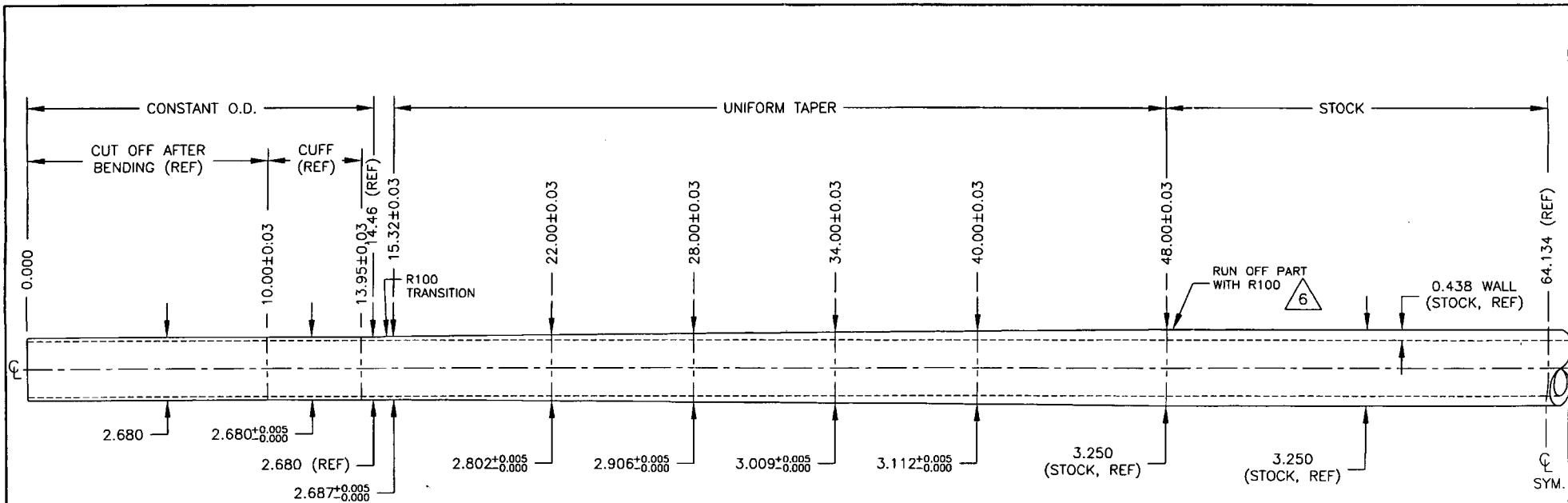
53255
09-10-29

DE ATTACHED
RELEASED
07.07.07

		A	07.07.07	NEW ISSUE
DESIGN	DRAWN BY	97	97	DART
CHECKED	APPROVED	97	97	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
		DRAWING NO.		REV. A
		D212-664-247		SHEET 1 OF 3
DATE		TITLE		SCALE
07.07.07		CROSSTUBE (205/212 LOW AFT)		NTS

COPYRIGHT © 2007 BY DART AEROSPACE LTD.
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL
AND IS SUPPLIED ON THE EXPRESS CONDITION
THAT IT IS NOT TO BE USED FOR ANY PURPOSE
OR COPIED OR COMMUNICATED TO ANY OTHER
PERSON WITHOUT WRITTEN PERMISSION FROM
DART AEROSPACE LTD.





D212-664-247 MACHINING DETAIL

RELEASED
07-09-24

DEO ATTACHED

SHOP
RETURN
ENGINE
UNCONTROLLED
SUBJECT TO
WITHDRAWAL
WORK
NO. 53255

COPYRIGHT © 2007 BY DART AEROSPACE LTD.
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL
AND IS SUPPLIED ON THE EXPRESS CONDITION
THAT IT IS NOT TO BE USED FOR ANY PURPOSE
OR COPIED OR COMMUNICATED TO ANY OTHER
PERSON WITHOUT WRITTEN PERMISSION FROM
DART AEROSPACE LTD.

DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKSBURY, ONTARIO, CANADA
9P	9P	DRAWING NO. D212-664-247 REV. A SHEET 3 OF 3
07.07.07	07.07.07	DATE TITLE SCALE CROSSTUBE (205/212 LOW AFT) 1:4

DRAWING NO. D212-664-247	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D212-664-247-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>cp</i>	CHECKED <i>PS</i>	MFG. APPR. <i>AA</i>	APPROVED <i>AM</i>	DE APPR. <i>AM</i>		
DATE 09.05.01	DATE 09.06.15	DATE 09/06/22	DATE 09/06/22	DATE 09.06.22		

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-247B	CROSSTUBE ASSEMBLY (214 LOW AFT)

THE D212-664-247B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-247 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-247 CROSSTUBE.

RELEASED
09/06/22 AM

SHOP
RETURN
ENGINEER
UNCONTROLLED
SUBJECT TO AMENDMENT
WITHOUT PRIOR
WORK ORDER
NO. *53255*

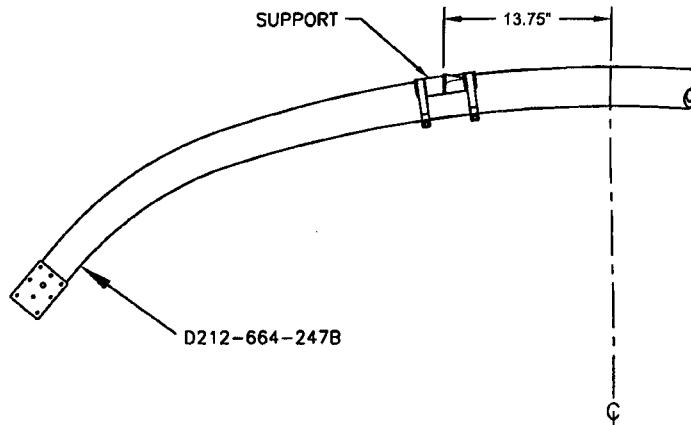


FIGURE 1 - SUPPORT INSTALLATION